

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-29 (Canceled).

1 30. (Previously Presented) A method for floating at least one substance for
2 growing a tissue part in a bioreactor, the method comprising:

3 providing at least one substance consisting of one of a tissue part, a scaffold
4 having cells deposited thereon, and a scaffold including a tissue part thereon; and

5 acting upon said substance with fluid, wherein the fluid holds the substance in
6 free flotation;

7 wherein the fluid flows in a direction counter to gravity when a density of said
8 substance is greater then a density of the fluid, and in a direction counter to buoyancy when a
9 density of said substance is less then a density of the fluid.

1 31. (Previously Presented) A method in accordance with claim 30, wherein
2 the fluid has an increasingly lower flow speed in the direction counter to gravitation.

1 32. (Previously Presented) A method in accordance with claim 30, wherein
2 the substance is acted upon with at least one fluid jet.

1 33. (Previously Presented) A method in accordance with claim 30, wherein a
2 position of the substance in the bioreactor is measured by a sensor, and wherein a speed of the
3 fluid in the bioreactor is regulated to hold the substance in flotation.

1 34. (Previously Presented) A method in accordance with claim 30, wherein
2 the fluid flows downward in the direction of gravitation, and wherein a gaseous fluid is led into
3 the downward flowing fluid.

1 35. (Previously Presented) A method in accordance with claim 34, wherein a
2 flow of the gaseous fluid is slowed down by a flow of the downward flowing fluid.

1 36. (Presently Amended) A bioreactor for growing a tissue part comprising:

2 a container comprising a first flow chamber;

3 at least one substance consisting of one of a tissue part, a scaffold having cells
4 deposited thereon, and a scaffold including a tissue part thereon, wherein the substance is acted
5 upon with fluid; and

6 an apparatus for conveying the fluid, wherein the substance is arranged in the first
7 flow chamber in such a manner that the fluid holds the substance in free flotation.

1 37. (Previously Presented) A bioreactor in accordance with claim 36 further
2 comprising;

3 a sensor; and

4 a regulation apparatus,

5 wherein the fluid conveying apparatus is connected to the first flow chamber, and
6 wherein the regulation apparatus is connected to the fluid conveying apparatus and to the sensor
7 in such a manner that the position of the substance may be measured and regulated.

1 38. (Previously Presented) A bioreactor in accordance with claim 36, wherein
2 the first flow chamber widens upwardly.

1 39. (Previously Presented) A bioreactor in accordance with claim 38, wherein
2 the container has a section of the wall, wherein said section widens upwardly and forms the first
3 flow chamber.

1 40. (Previously Presented) A bioreactor in accordance with claim 36, wherein
2 at least one fluid line opens into the first flow chamber.

1 41. (Previously Presented) A bioreactor in accordance with claim 36 further
2 comprising at least one fluid guiding means arranged in the container, wherein the fluid guiding
3 means forms the first flow chamber, and wherein the first flow chamber widens upwardly.

1 42. (Previously Presented) A bioreactor in accordance with claim 41, wherein
2 the fluid guiding means is a hollow body.

1 43. (Previously Presented) A bioreactor in accordance with claim 42, wherein
2 the hollow body has an inner space, and wherein said inner space widens upwardly and forms the
3 first flow chamber.

1 44. (Previously Presented) A bioreactor in accordance with claim 42, wherein
2 the container comprises a wall, wherein the hollow body has an upwardly reducing outer
3 contour, and wherein the hollow body is arranged in the container in such a manner that the first
4 flow chamber is formed between said outer contour and the container wall.

1 45. (Previously Presented) A bioreactor in accordance with claim 42, wherein
2 the hollow body is formed in the shape of a truncated circular cone.

1 46. (Previously Presented) A bioreactor in accordance with claim 36, wherein
2 the container has at least one closeable opening.

1 47. (Previously Presented) A bioreactor in accordance with claim 46, wherein
2 the closeable opening has a surface of at least one fourth of a cross-sectional area of the
3 container.

1 48. (Previously Presented) A bioreactor in accordance with claim 46, wherein
2 the closeable opening is arranged above the first flow chamber.

1 49. (Previously Presented) A bioreactor in accordance with claim 36, wherein
2 the fluid conveying apparatus is outside the container, and wherein the fluid conveying apparatus
3 is connected to the container.

1 50. (Previously Presented) A bioreactor in accordance with claim 36, wherein
2 the fluid conveying apparatus comprises a fluid conveying means arranged inside the container.

1 51. (Previously Presented) A bioreactor in accordance with claim 50, wherein
2 the fluid conveying apparatus comprises an electric motor having a static motor part arranged
3 outside the container and a rotatable motor part arranged inside the container, and wherein the
4 fluid conveying means is connected to the rotatable motor part.

1 52. (Previously Presented) A bioreactor in accordance with claim 51, wherein
2 the electric motor is a canned motor, and wherein the rotatable motor part is rotated without a
3 through-going shaft.

1 53. (Previously Presented) A bioreactor in accordance with claim 51, wherein
2 the fluid conveying apparatus comprises a magnetic coupling drive adapted for coupling to the
3 rotatable motor part.

1 54. (Previously Presented) A bioreactor in accordance with claim 51, wherein
2 the rotatable motor part is journalled at least with respect to one degree of freedom with
3 magnetically acting means.

1 55. (Previously Presented) A bioreactor in accordance with claim 54, wherein
2 the rotatable motor part is completely magnetically journalled.

1 56. (Previously Presented) A bioreactor in accordance with claim 50, wherein
2 the fluid conveying means is a vaned wheel.

1 57. (Previously Presented) A method for floating a substance for growing a
2 tissue part in a bioreactor, the method comprising:

3 providing at least one substance consisting of at least one of a tissue part, a
4 scaffold having cells deposited thereon, and a scaffold including one or more tissue parts
5 thereon; and

6 acting upon said substance with fluid, wherein the fluid holds the substance in
7 free flotation;

8 wherein the fluid flows in a direction counter to gravity when a density of said
9 substance is greater than a density of the fluid, and in a direction counter to buoyancy when a
10 density of said substance is less than a density of the fluid.

1 58. (Previously Presented) A method in accordance with claim 34, wherein
2 the gaseous fluid is oxygen.

1 59. (Previously Presented) A method in accordance with claim 34, wherein
2 the gaseous fluid is air.

1 60. (Previously Presented) A method in accordance with claim 57, wherein
2 the substance is acted upon with at least one fluid jet.

1 61. (Previously Presented) A method in accordance with claim 57, wherein a
2 position of the substance in the bioreactor are measured by a sensor, and wherein a speed of the
3 fluid in the bioreactor is regulated to hold the substance in floatation.

1 62. (Previously Presented) A method in accordance with claim 57, wherein
2 the fluid flows downward in the direction of gravity, and wherein a gaseous fluid is led into the
3 downward flowing fluid.

1 63. (Previously Presented) A method in accordance with claim 62, wherein a
2 flow of gaseous fluid is slowed down by a flow of the downward flowing fluid.

1 64. (Previously Presented) A method in accordance with claim 57, wherein
2 the fluid has an increasingly lower speed in the direction counter to gravity.

1 65. (Previously Presented) A bioreactor in accordance with claim 36 further
2 comprising a second flow chamber arranged above the first flow chamber, wherein the second

3 flow chamber is formed in such a manner that fluid flowing from top to bottom therein has a
4 lower speed with decreasing height.

1 66. (Previously Presented) A bioreactor in accordance with claim 65, wherein
2 the first and the second flow chambers form a common inner space which has an inlet opening
3 for the fluid at the top and at the bottom and which has an outlet opening between the top and
4 bottom inlet opening.

1 67. (Previously Presented) A bioreactor in accordance with claim 65, wherein
2 the fluid conveying means is a pump that is connected to the top and bottom inlet opening and to
3 the outlet opening in such a manner that the quantity of fluid flowing into the top and bottom
4 inlet opening may be controlled.

1 68. (Previously Presented) A bioreactor in accordance with claim 40 wherein
2 the at least one fluid line is arranged such that it opens into the first flow chamber from below
3 with respect to the first flow chamber.

1 69. (Previously Presented) A bioreactor in accordance with claim 40 wherein
2 the at least one fluid line is arranged such that it opens into the first flow chamber laterally with
3 respect to the first flow chamber.

1 70. (Previously Presented) A bioreactor comprising a container for a
2 substance, the bioreactor comprising:

3 a first flow chamber to which a flowing fluid may be supplied, with the first flow
4 chamber being designed such that the fluid flowing upwardly therein has a lower speed with
5 increasing height; and

6 a second flow chamber arranged above the first flow chamber, the second flow
7 chamber being designed such that fluid flowing from top to bottom within the second flow
8 chamber has a smaller speed with decreasing height;

9 wherein the first flow chamber and the second flow chamber form a common
10 inner space that has a first inlet opening for the fluid at a top of the common inner space and a
11 second inlet opening for the fluid at a bottom of the common space; and

- 12 wherein the common inner space has an outlet opening between the first and
13 second inlet openings.